

JC05 Rec'd PCT/TO 29 MAR 2002

FORM PTO-1390 (REV. 12-2001)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 205567-xxxx
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (If known, see 37 CFR 1.5) 10/089586
INTERNATIONAL APPLICATION NO. PCT/IT00/00380	INTERNATIONAL FILING DATE 27 September 2000	PRIORITY DATE CLAIMED 30 September 1999	
TITLE OF INVENTION A GLASS FIBER COMPOSITION			
APPLICANT(S) FOR DO/EO/US LA GRECA, Marco; MASSINI, Roberto and PASALAIGUA HUGUET, Jorge			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
<p>1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.</p> <p>4. <input type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31).</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))</p> <p>a. <input type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau).</p> <p>b. <input checked="" type="checkbox"/> has been communicated by the International Bureau.</p> <p>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).</p> <p>a. <input checked="" type="checkbox"/> is attached hereto.</p> <p>b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4).</p> <p>7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p>a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau).</p> <p>b. <input type="checkbox"/> have been communicated by the International Bureau.</p> <p>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p>d. <input type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 2 Declarations</p> <p>10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p>Items 11 to 20 below concern document(s) or information included:</p> <p>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 2 Assignments</p> <p>13. <input type="checkbox"/> A FIRST preliminary amendment.</p> <p>14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</p> <p>15. <input type="checkbox"/> A substitute specification.</p> <p>16. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1 821 - 1 825.</p> <p>18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4).</p> <p>19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).</p> <p>20. <input checked="" type="checkbox"/> Other items or information: A copy of the International Search Report A copy of the International Preliminary Examination Report</p>			

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U.S. APPLICATION NO. (If known) 37 CFR 1.53 107/089586		INTERNATIONAL APPLICATION NO. PCT/IT00/00380		ATTORNEY'S DOCKET NUMBER 205677-XXXX	
21. <input checked="" type="checkbox"/> The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1040.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$890.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$740.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$710.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$180.00 ENTER APPROPRIATE BASIC FEE AMOUNT =				CALCULATIONS PTO USE ONLY 890.00 \$ 890.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	18 - 20 =	0	x \$18.00	\$	
Independent claims	1 - 3 =	0	x \$84.00	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable) + \$280.00				\$ 280.00	
TOTAL OF ABOVE CALCULATIONS =				\$	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2				+	
SUBTOTAL =				\$	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
TOTAL NATIONAL FEE =				\$	
Fee for recording the enclosed assignment (37 CFR 1.21(b)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$ 80.00	
TOTAL FEES ENCLOSED =				\$ 1250.00	
				Amount to be refunded: \$	
				charged: \$	
<p>a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>1250</u> to cover the above fees is enclosed.</p> <p>b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.</p> <p>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>59-1965</u>. A duplicate copy of this sheet is enclosed.</p> <p>d. <input type="checkbox"/> Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.</p>					
<p>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 4.137 (a) or (b)) must be filed and granted to restore the application to pending status.</p> <p>SEND ALL CORRESPONDENCE TO:</p> <p>Barry W. Sufrin Michael Best & Friedrich LLC 401 N. Michigan Ave., Suite 1900 Chicago, IL 60611</p>					
				<p><i>Barry W. Sufrin</i> SIGNATURE Barry W. Sufrin NAME <u>27,398</u> REGISTRATION NUMBER</p>	

A GLASS FIBER COMPOSITION

Description

5 The present invention relates to a glass fiber composition. In particular, the present invention relates to a biologically-degradable or bio-soluble glass fiber composition, adapted for production of panels and felts of glass wool. These goods are commonly used in the civil
10 and industrial field in the form of heat insulators and/or sound-proofing materials.

Presently known are many glass fiber compositions showing some biological degradability or bio-solubility
15 (solubility of a glass fiber in contact with a biological liquid). It is in fact to be recognized that the biological degradability in glass fibers was in the past and has been till now the object of many studies because a relation seems to exist between this biological
20 degradability and the cancerogenous properties that the glass fiber may show if it is introduced into or absorbed by a human or animal body.

In particular, it has been recently ascertained that a
25 higher bio-solubility can reduce the cancerogenous effects of the glass fibers increasing the capability of the human or animal body to get rid of the possibly-absorbed fibers.

30 In addition to bio-solubility, the glass fiber compositions of industrial concern must at all events also have an appropriate behaviour with reference to properties of physical, chemical and mechanical nature, such as for example: mechanical strength, elasticity,
35 resistance to thermal fronts and chemical and atmospheric agents, workability, flexibility, fineness,

length/diameter ratio. Also to be taken into account is the economic aspect: it is apparent that too expensive glass fibers cannot be put on the market so as to be competitive.

5

Therefore, greatly felt is a need for a glass fiber composition having a good biological degradability combined with good features with reference to the above mentioned chemical, physical and mechanical properties.

10 In particular, obtaining an economically convenient glass
fiber composition having a good biological degradability
and at the same time a good resistance to water and
humidity is very complicated because the last-mentioned
requirement can be hardly reconciled with fibers having
15 a good tendency to dissolve in biological media.

More generally, that which is complicated is coordinating the economical requirements of an industrial production with bio-solubility and with the strength requirements that a fiber must have in order to be able to fulfill the present uses.

It is therefore an aim of the present invention to provide a glass fiber composition which is sufficiently bio-soluble and has a good resistance if brought into contact with water and/or humidity, a good workability, by use of centrifugal techniques for example, a capability of achieving a good heat/soundproof insulation, a good elasticity and reduced brittleness.

30

It is a further aim of the present invention to provide a glass fiber composition having reduced production costs.

35 In an attempt to reach the above-mentioned aims,
compositions were proposed in the past in which the SiO_2

and Al_2O_3 content was greatly reduced while corresponding important increases in CaO , MgO , Na_2O , K_2O and B_2O_3 content were carried out thereby obtaining fibers that were weakly efficient in terms of structure, production and costs.

Surprisingly, as better specified during the following detailed description, the Applicants have developed a biologically degradable glass fiber composition in which, by virtue of a particular combination of alkaline and non-alkaline oxides, the SiO_2 and Al_2O_3 content have been greatly reduced, while satisfactory results in terms of bio-solubility have been at the same time achieved.

15 In particular, it is an object of the present invention to provide a biologically degradable or bio-soluble glass fiber composition characterized in that it comprises the following components the counter-actions of which are expressed in percent by weight:

- | | | |
|----|---|-----------------|
| 20 | - SiO ₂ : | 61 to 66; |
| | - Al ₂ O ₃ : | 1.1 to 2.1: |
| | - (CaO+MgO): | higher than 9; |
| | - (Na ₂ O+K ₂ O): | higher than 18; |
| | - B ₂ O ₃ : | 4 to 15; |
| 25 | - P ₂ O ₅ : | 0 to 5; |
| | - SO ₃ : | 0 to 1; |
| | - Fe ₂ O ₃ : | 0 to 0.5; |
| | - Others: | less than 2. |

30 The particular combination and concentration of organic oxides gives the glass fiber composition being the object of the present invention good mechanical features, workability, resistance to humidity and excellent heat/soundproof insulation features.

35 Now, the detailed description of some preferential

embodiments of the composition in accordance with the invention will be given and the different components of the glass fiber composition of the invention will be analysed hereinafter; each component will be analysed in order to highlight its behaviour and technical effect in coordination with the other elements in the composition.

Silica (SiO_2) is one of the vitrifying agents present in the composition and helps in forming the glass lattice. Silica gives structural properties to glass. In the concerned composition silica is present in a percent by weight included between 61 and 66.

Alumina (Al_2O_3) was measured very carefully because a too great percentage by weight would act, among other things, in a manner involving decrease in the biological degradability of the resulting glass. At the same time alumina cannot be completely eliminated because a too water-soluble glass would be obtained. A glass without alumina, once reduced to fiber, would not stand too long in contact with humidity. In addition glass, in order to be able to be formed into fibers, must keep its viscosity value within a well-precise range under which it is practically impossible to obtain fibers in an industrial manner. For the above reasons alumina is present in a concentration by weight included between 1.1 and 2.1. Preferably, alumina is present in a concentration by weight included between 1.1 and 1.8.

Calcium oxide (CaO) and magnesium oxide (MgO) stabilize the glass lattice and give the glass structural features. In addition, calcium oxide and magnesium oxide both reduce the glass viscosity and capability of being formed into fibers. More specifically, it should be pointed out that calcium oxide and magnesium oxide contribute to viscosity in a manner different from each

other: magnesium oxide reduces viscosity less than calcium oxide. Calcium oxide and magnesium oxide also affect the biological degradability of the glass fibers.

5 In accordance with the invention, use of the combination
of the two oxides ($\text{CaO}+\text{MgO}$) in a percent by weight higher
than 9 appeared to be advantageous. In particular a MgO
content higher than or equal to 2.5 percent by weight
appeared to be useful, the calcium oxide oscillations
10 being included in a range between 6.5 and 8 percent by
weight.

Sodium oxide (Na_2O) and potassium oxide (K_2O) affect the glass degradability making it higher. At the same time, sodium oxide and potassium oxide also increase the water-solubility of glass. In both cases, the potassium oxide contribution is lower than the sodium oxide contribution. The two alkaline oxides also act on the glass viscosity and therefore the glass capability of being formed into fibers. As already mentioned, viscosity is a parameter of the greatest importance as regards glass workability and formation into fibers. In addition, the two alkaline oxides also somewhat affect the glass brittleness. A compromise between economical factors, industrial workability, brittleness, biological degradability and resistance to water was obtained by combining the two alkaline oxides ($\text{Na}_2\text{O}+\text{K}_2\text{O}$) in a percentage by weight higher than 18. Preferably and originally, the combination of the two alkaline oxides ($\text{Na}_2\text{O}+\text{K}_2\text{O}$) in percent by weight is higher than or equal to 18.50 and lower than or equal to 23. In particular, Na_2O is present in a concentration by weight included between 17.70 and 18.50. In turn, potassium oxide is present in a concentration by weight included between zero and 2 and more preferably it is present in a concentration by weight included between 0.50 and 1.50. It should be noted

that an increase in the concentration by weight of Al_2O_3 follows an increase in the concentration by weight of Na_2O because the glass viscosity, notwithstanding the possible presence of K_2O , becomes too low and therefore
5 an industrially unworkable glass would result.

Boron oxide (B_2O_3) advantageously contributes to the glass fiber elasticity. In particular, a felt of fibers having a good elasticity must be able to be compressed and, once
10 released, to take its original thickness again. Elasticity also helps in ensuring a good workability to the glass, above all during the operations for forming it into fibers. An elastic glass fiber surely is subject to less fractures. Since the alumina content was lowered
15 under 2% by weight and at the same time the Na_2O and K_2O content was increased in order to ensure a good bio-solubility, a weight amount of B_2O_3 at least included between 4 and 15 and preferably between 5 and 15 was originally inserted in order to avoid too brittle a fiber
20 being obtained. At all events boron oxide B_2O_3 also helps in reducing viscosity and has some repercussions from an economical point of view. In addition, boron oxide affects the biological degradability of glass fibers. For the reasons briefly discussed above, when an increase in
25 brittleness occurs, due to an increase in the alkali ($\text{Na}_2\text{O} + \text{K}_2\text{O}$) amount for example, the boron oxide component is increased in the composition but only to such an extent that the manufacturing cost of the glass is not increased too much. For instance (see the above-
30 reproduced Example 1), if sodium oxide is present in a high concentration by weight and aluminium oxide is present in a low concentration, the resulting fiber could be more brittle. In order to compensate for the resulting fiber brittleness, preferably a higher concentration by
35 weight of boron oxide is employed.

30 Sulfur trioxide (SO_3) proved to affect the composition
behaviour by improving the biological degradability of
glass without substantially varying its resistance to
 H_2O . Sulfur trioxide was therefore provided in a
percentage by weight included between zero and 1.
35 Preferably sulfur trioxide is present in a percentage by
weight included between 0.10 and 0.5.

More specifically, in accordance with the concrete form disclosed in claim 6 a good biological degradability was obtained and an increase in the combination ($B_2O_3+P_2O_5$) was conceived in order to compensate for a reduction in the amount by weight of Al_2O_3 and for an increase in the alkaline oxides that have reduced the structural resistance and increased the glass brittleness, respectively. In particular, the P_2O_5 action consists in efficiently increasing the structural features and bio-solubility and the B_2O_3 component acts on the fiber elasticity, improves bio-solubility and does not reduce

Finally, a composition having a high concentration by weight of alumina in accordance with claim 13 surprisingly appears to be bio-soluble since magnesium oxide helps in increasing solubility and also ensures a better behaviour than calcium oxide when the fiber-forming operations are carried out. In an original manner, in the composition in accordance with claim 13, with an alumina increase there is not a corresponding variation in the calcium oxide content but an important increase in magnesium oxide and boron oxide content since one improves bio-sensitivity and the fiber-forming operations and the other improves elasticity and bio-solubility.

Some particular embodiments of glass fiber compositions are given hereinafter by way of non-limiting examples.

EXAMPLE NO. 1

5

A first illustrative glass fiber composition in accordance with the invention has the following components the concentration of which is expressed in percent by weight:

10	- SiO ₂ :	63.95;
	- Al ₂ O ₃ :	1.10;
	- CaO:	7.50;
	- MgO:	2.50;
	- Na ₂ O:	17.80;
15	- K ₂ O:	0.70;
	- B ₂ O ₃ :	6.00;
	- SO ₃ :	0.35;
	- Fe ₂ O ₃ :	0.10;
	- Others:	less than 2.

20

This glass was worked by centrifugal techniques. The water-solubility value was equal to 26 mg/g.

25 This evaluation of the resistance to water was carried out with the DGG (Deutsch Glassfasern Gesellschaft) method as also set out in the European Patent No. EP 738693A2.

30 According to this methodology, 10 g of glass, finely ground to 360-400 microns, is put in 100 ml of distilled water to the boiling point for 5 hours with a dropping cooler. After a quick cooling, the obtained solution is filtered, brought to volume and an aliquot is evaporated in a stove to 150°C, until complete dryness. The weight
35 of the dry residue enables the amount of glass dissolved in water to be known. As above indicated, the expression

of the results is in mg per gram of tested glass. As can be seen the glass in Example 1 has a water-solubility value which is not much higher than 200 mg/g, and this is a typical value of standard glasses.

5

The bio-degradability evaluated by bio-persistence tests in conformity with Protocol ECB/TM/26 rev. 7, 1998 gave rise, for fibers longer than 20 μ , to a weighted mean life of the fiber considerably lower than the 10 days required by the EEC directives 97/69/CE of 05.12.1997.

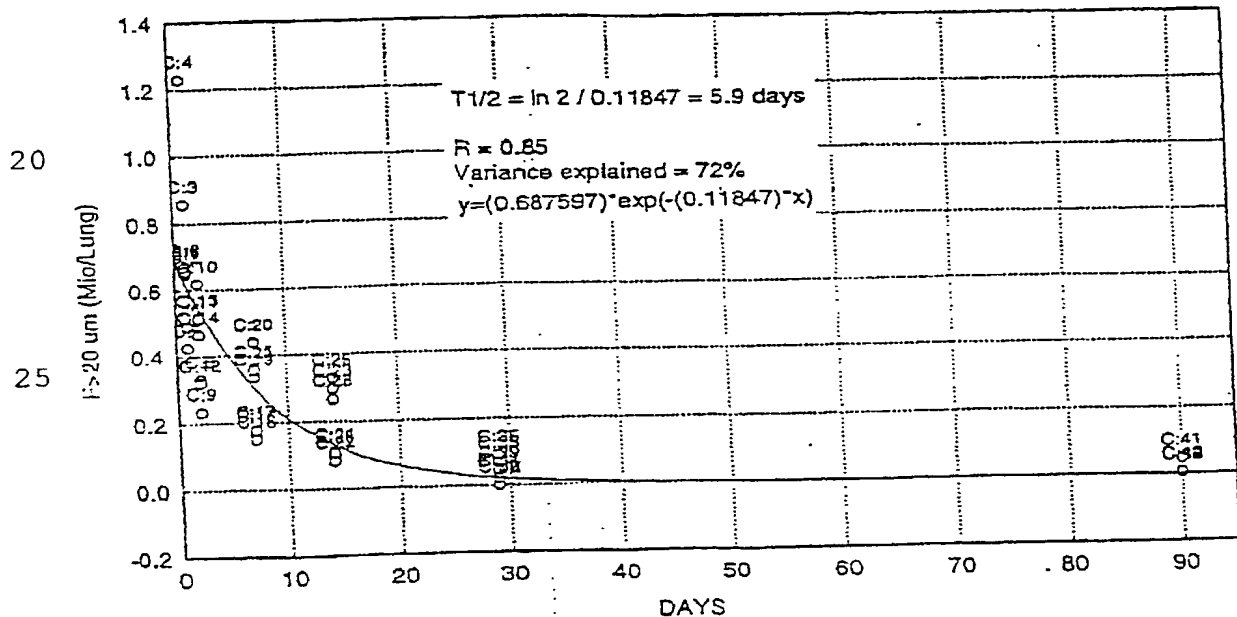
EXAMPLE NO. 2

A second glass fiber composition in accordance with the invention has the following components the concentrations of which are expressed in percent by weight:

	- SiO ₂ :	64.95;
	- Al ₂ O ₃ :	1,20;
	- CaO:	7.00;
20	- MgO:	2.50;
	- Na ₂ O:	17.80;
	- K ₂ O:	0.70;
	- B ₂ O ₃ :	4.40;
	- P ₂ O ₅ :	1.00;
25	- SO ₃ :	0.35;
	- Fe ₂ O ₃ :	0.10;
	- Others:	less than 2.

This glass was worked by centrifugal techniques. The value of the resistance to humidity detected by the DGG method is 32 mg/g. The bio-degradability evaluated by bio-persistence tests in conformity with Protocol ECB/TM/26 rev. 7, 1998 gave rise, for fibers longer than 20 μ , to a weighted mean life of the fiber considerably lower than the 10 days required by the EEC directives 97/69/CE of 05.12.1997.

These bio-persistence features were evaluated, as said, by analysing the capability of these fibers to be
35 evacuated from the inside of the pulmonary tissue of mice submitted to appropriate tests in conformity with the



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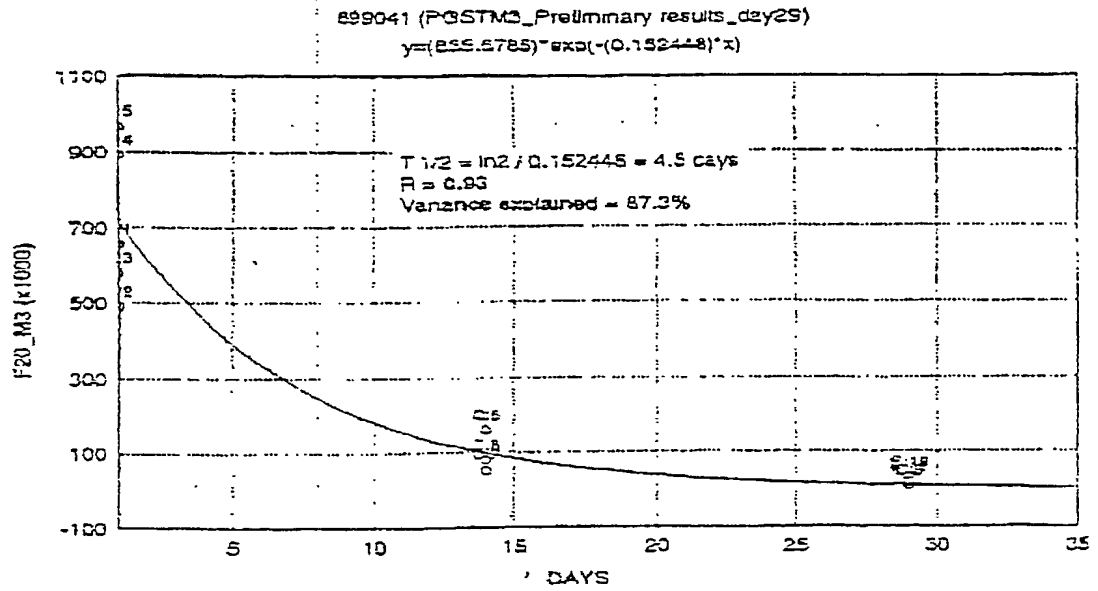
- 14 -

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Composition of Example 2

5

10



- SiO₂: 61 to 66;
- Al₂O₃: 1.1 to 2.1;
- 35 - (CaO+MgO): higher than 9;
- Na₂O: higher than 17.5, lower than or equal

- | | | |
|----|-------------------------------|-----------------|
| | - SiO_2 : | 61 to 66; |
| | - Al_2O_3 : | 1.1 to 1.80; |
| 30 | - $(\text{CaO}+\text{MgO})$: | higher than 9; |
| | - Na_2O : | 17.50 to 18.50; |
| | - K_2O : | 0.6 to 1; |
| | - B_2O_3 : | 5 to 15; |
| | - P_2O_5 : | 0 to 5; |
| 35 | - SO_3 : | 0 to 1; |
| | - Fe_2O_3 : | 0 to 0.5; |

- SiO ₂ :	61 to 66;
- Al ₂ O ₃ :	1.1 to 1.25;
35 - (CaO+MgO):	higher than 9;
- Na ₂ O:	17.50 to 18.50;

11. The composition as claimed in claim 5, characterized

- SiO₂: 61 to 66;
- Al₂O₃: 1.6 to 1.8;
- (CaO+MgO): higher than 9;
- MgO: higher than 3;
- 35 - MgO: preferably higher than 3.50;
- Na₂O: 17.50 to 18.50;

- K_2O : 0.6 to 1.5;
- B_2O_3 : 5 to 15;
- P_2O_5 : less than 0.1;
- SO_3 : less than 0.35;
- 5 - Fe_2O_3 : higher than zero;
- Others: less than 2.

14. The composition as claimed in claim 5, characterized in that it comprises the following components expressed
10 in percent by weight:

- SiO_2 : 61 to 66;
- Al_2O_3 : 1.6 to 1.8;
- $(CaO+MgO)$: higher than 9;
- (Na_2O+K_2O) : higher than or equal to 18.5 and
15 lower than or equal to 23;
- K_2O : 0.6 to 1.5;
- B_2O_3 : 5 to 15;
- P_2O_5 : less than 0.1;
- SO_3 : 0.1 to 0.25;
- 20 - Fe_2O_3 : higher than 0;
- Others: less than 2.

15. The composition as claimed in claim 5, characterized in that it comprises the following components expressed
25 in percent by weight:

- SiO_2 : 61 to 66;
- Al_2O_3 : 1.6 to 1.8;
- $(CaO+MgO)$: higher than 9;
- MgO : higher than 3;
- 30 - MgO : preferably higher than 3.50;
- (Na_2O+K_2O) : higher than or equal to 18.5 and lower than or equal to 23;
- K_2O : 0.6 to 1.5;
- B_2O_3 : 5 to 15;
- 35 - P_2O_5 : less than 0.1;
- SO_3 : 0.1 to 0.25;

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- Published:**
- With international search report.
 - Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A GLASS FIBER COMPOSITION

(57) Abstract: The invention relates to a biologically-degradable glass fiber composition having good mechanical properties, good workability and in particular fiber-forming-capability features and resistance to humidity. The concentrations expressed in percent by weight for each component being the object of the invention are: SiO₂: 61 to 66; Al₂O₃: 1.1 to 2.1; (CaO+MgO): higher than 9; (Na₂O+K₂O): higher than 18; B₂O₃: 4 to 15; P₂O₅: 0 to 5; SO₃: 0 to 1; Fe₂O₃: 0 to 0.5; Others: less than 2.

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Declaration and Power of Attorney for Patent Application

Dichiarazione e procura ai fini della domanda di brevetto

Italian Language Declaration

Il sottoscritto inventore dichiara che:

La propria residenza, recapito postale e cittadinanza corrispondono a quanto indicato in calce, sotto la propria firma.

Ritengo di essere il primo ed unico inventore originale (se viene elencato in calce un solo nominativo) o il coinventore primo ed originale (se è elencato più di un nominativo) del oggetto rivendicato e per il quale il sottoscritto presenta domanda di brevetto. La invenzione in questione è chiamata

e la sua descrizione è allegata alla presente Dichiarazione a meno che non sia spuntata la seguente casella:

- ☐ Il _____
è stata depositata una domanda di brevetto
statunitense numero o una domanda di brevetto
internazionale PCT numero
_____ che è stata modificata il
_____ (se applicabile).

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Il sottoscritto riconosce l'obbligo di rivelare informazioni essenziali ai fini della determinazione della brevettabilità ai sensi del Titolo 37, Codice dei Regolamenti Federali, § 1.56.

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I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

A FIBER GLASS COMPOSITION

the specification of which is attached hereto unless the following box is checked:

- ☒ was filed on 9/27/00
as United States Application Number or PCT
International Application Number
PCT/IT00/00380 and was amended on
_____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

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Italian Language Declaration

Il sottoscritto rivendica con la presente la priorità prevista dal Titolo 35, Codice degli Stati Uniti, § 119(c)-(d) o § 365(b) in relazione a qualsiasi domanda o domande estere di brevetto o certificato di inventore, o dal Titolo 35, § 365(a) degli stessi Codice in relazione a qualsiasi domanda internazionale PCT nella quale è designato almeno un paese diverso dagli Stati Uniti, i suddetti domande e certificati essendo elencati sotto, e, spuntando le seguenti caselle, ha anche identificato sotto qualsiasi domanda estera di brevetto o certificato di inventore, o domanda internazionale PCT, la cui data di deposito preceda quella della domanda per la quale è rivendicata la priorità.

**Prior Foreign Application(s)
Domande Estere Anteriori**

(Number) (Numero)	(Country) (Nazione)
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(Number) (Numero)	(Country) (Nazione)
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Il sottoscritto rivendica con la presente i benefici previsti dal Titolo 35, Codici degli Stati Uniti, § 119(e), in relazione a qualsiasi domanda o domande provvisorie degli Stati Uniti elencate sotto.

(Application No.) (N° della domanda)	(Filing Date) (Data di deposito)
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(Application No.) (N° della domanda)	(Filing Date) (Data di deposito)
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Il sottoscritto rivendica con la presente i benefici previsti dal Titolo 35, Codice degli Stati Uniti, § 120, in relazione a qualsiasi domanda o domande statunitensi, o dal Titolo 35, § 365(c) degli stessi Codice in relazione a qualsiasi domanda internazionale PCT nella quale sono designati gli Stati Uniti, i suddette domande essendo elencate sotto e, nella misura in cui l'oggetto di ciascuna rivendicazione di questa domanda non sia stato esposto nella domanda statunitense o internazionale PCT anteriore nel modo previsto dal primo paragrafo del Titolo 35, Codice degli Stati Uniti, § 112, riconosce l'obbligo di rivelare informazioni essenziali ai fini della determinazione della brevettabilità ai sensi del Titolo 37, Codici dei Regolamenti Federali, § 1.56, le quali diventino disponibili durante il periodo compreso tra la data di deposito della domanda anteriore e la data di deposito nazionale o internazionale PCT della presente domanda.

(Application No.) (N° della domanda)	(Filing Date) (Data di deposito)
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(Application No.) (N° della domanda)	(Filing Date) (Data di deposito)
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Con la presente, il sottoscritto dichiara veritiere tutte le affermazioni contenute in questa domanda in relazione alle proprie conoscenze e di ritenere vere tutte le affermazioni o informazioni presentate. Dichiara inoltre che tali asserzioni sono state espresse nella piena consapevolezza che le dichiarazioni intenzionalmente false sono punibili con una multa, l'incarcerazione o entrambe, ai sensi della Sezione 1001 del Titolo 18 del Codice degli Stati Uniti e che tali dichiarazioni intenzionalmente false possono mettere a repentaglio la validità della domanda o di qualsiasi brevetto rilasciato in merito.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

**Priority Not Claimed
Diritto di priorità non rivendicato**

(Day/Month/Year Filed) (Giorno/Mese/Anno di deposito)	<input type="checkbox"/>
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(Day/Month/Year Filed) (Giorno/Mese/Anno di deposito)	<input type="checkbox"/>
--	--------------------------

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

MI99A002040 filed 9/30/99

(Status) (patented, pending, abandoned) (Stato) (concessione di brevetto, in corso di esame, abbandono)
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(Status) (patented, pending, abandoned) (Stato) (concessione di brevetto, in corso di esame, abbandono)
--

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PROCURA: Il sottoscritto inventore nomina con la presente il seguente avvocato o avvocati e/o agente o agenti al fine di istruire questa pratica e di condurre tutte le operazioni ad essa pertinenti presso l'Ufficio dei Brevetti e Marchi di Fabbrica: *(Elencare il nome ed il numero di matricola).*

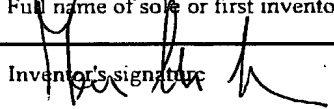
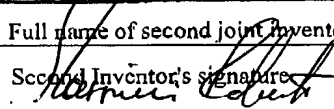
POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*.

Inviare le corrispondenza a:

Barry W. Sufrin, Reg. No. 27398
Send Correspondence to:

Telefonare a: (nome e numero telefonico)

Barry W. Sufrin, 312-661-2100
Direct Telephone Calls to: *(name and telephone number)*

Nome e cognome dell'unico o del primo inventore	Full name of sole or first inventor	Mr. <u>Marco LA GRECA</u>
Firma dell'inventore	Inventor's signature	
Data	Date	MARCH 14, 2002
Residenza	Residence	Via Vittorio Veneto; 9/4 PESCHIERA BORROMEO (MILANO)
Cittadinanza	Citizenship	italian
Recapito postale	Post Office Address	BUGNION S.P.A.
		Viale Lancetti, 17 MILANO - ITALY - <u>FTX</u>
Nome e cognome dell'eventuale secondo coinventore	Full name of second joint inventor, if any	Mr. <u>Roberto MASSINI</u>
Firma del secondo coinventore	Second inventor's signature	
Data	Date	MARCH 14, 2002
Residenza	Residence	Via Marchesi, 11 CARAVAGGIO (BERGAMO) <u>FTX</u>
Cittadinanza	Citizenship	italian
Recapito postale	Post Office Address	BUGNION S.P.A.
		Viale Lancetti, 17 MILANO - ITALY -

(Fornire le stesse informazioni e le firme del terzo e degli ulteriori coinventori.)

(Supply similar information and signature for third and subsequent joint inventors.)

Declaration and Power of Attorney for Patent Application

Dichiarazione e procura ai fini della domanda di brevetto

Italian Language Declaration

Il sottoscritto inventore dichiara che:

La propria residenza, recapito postale e cittadinanza corrispondono a quanto indicato in calce, sotto la propria firma.

Ritengo di essere il primo ed unico inventore originale (se viene elencato in calce un solo nominativo) o il coinventore primo ed originale (se è elencato più di un nominativo) del oggetto rivendicato e per il quale il sottoscritto presenta domanda di brevetto. La invenzione in questione è chiamata

e la sua descrizione è allegata alla presente Dichiarazione a meno che non sia spuntata la seguente casella:

- ☐ Il _____
è stata depositata una domanda di brevetto
statunitense numero o una domanda di brevetto
internazionale PCT numero
_____ che è stata modificata il
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Prior Foreign Application(s)
Domande Estere Anteriori

(Number)	(Country)
(Numero)	(Nazione)

(Number)	(Country)
(Numero)	(Nazione)

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(N° della domanda)	(Data di deposito)

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No.)	(Filing Date)
(N° della domanda)	(Data di deposito)

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(N° della domanda)	(Data di deposito)

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(Giorno/Mese/Anno di deposito)	

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MI99A002040 filed 9/30/99

(Status) (patented, pending, abandoned)
(Stato) (concessione di brevetto, in corso di esame, abbandono)

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Italian Language Declaration

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Barry W. Sufrin, Reg. No. 27398

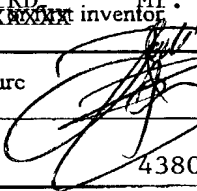
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Send Correspondence to:

Barry W. Sufrin, 312-661-2100

Teléfono a: *(nome e numero telefonico)*

Direct Telephone Calls to: *(name and telephone number)*

Nome e cognome dell'unico o del primo inventore	Full name of third ^{THIRD} inventor	Mr. Jorge PASALAIQUA HUGUET
Firma dell'inventore	Inventor's signature	
Data	Date	14/3/02
Residenza	Residence	C-Ignasi Sarrò 1 43800 VALLS-TARRAGONA
Cittadinanza	Citizenship	SPANISH
Recapito postale	Post Office Address	BUGNION S.P.A.
		Viale Lancetti, 17 20158 MILANO -ITALY -
Nome e cognome dell'eventuale secondo coinventore	Full name of second joint inventor, if any	
Firma del secondo coinventore	Second Inventor's signature	Date
Data		
Residenza	Residence	
Cittadinanza	Citizenship	
Recapito postale	Post Office Address	

(Fornire le stesse informazioni e le firme del terzo e degli ulteriori coinventori.)

(Supply similar information and signature for third and subsequent joint inventors.)